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(56) Documents cited
US 4314160 A US 4282944 A US 4179007 A
US 4168759 A US 4132282 A US 4019828 A

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(54) **Windpowered electric vehicle**

(57) A windpowered electric vehicle which has a suitably rated wind turbine mounted on its roof will keep on charging the batteries so long as the vehicle is in motion.

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WINDPOWERED ELECTRIC VEHICLE

This invention relates to a self-charging Electric vehicle, independent of solar power.

Presentday electric vehicles are driven by electric motors powered by high capacity, heavy and expensive batteries. These batteries become discharged after using for about an hour or more, thereby limiting the range of the vehicle. These vehicles have drive mechanisms rated between 12.5 and 30KW and the weight of the batteries vary between 200 and 600 Kg. Even solar powered cars cannot run continuously without sunlight.

According to the present invention, there is provided a wind driven generator, mounted on the roof of the electric vehicle to charge its batteries, so long as the vehicle is in motion, thereby extending the range of the vehicle by an amount proportional to the output of the generator.

Now, consider a conventional wind turbine, coupled to a generator to give an output of 3 MW. Such a turbine will be mounted at a height, of about 75 m above ground level, where the density of air is lower than that at ground level. It will have a rotor of inertia in the order of 25,000,000 Kg/m^2, blades of diameter 100m and will rotate at a speed of about 16.5 rpm.

If we have a small wind turbine mounted on a vehicle travelling at a speed of 60kmph, which is equivalent to 16.66m/s, the speed of wind falling on the blades of the turbine will be a minimum of 16.66m/s. The actual speed will be the speed of the vehicle plus the speed of the wind. Further, the rotor of such a turbine will have additional kinetic energy due to the translation of the vehicle. Therefore, it is possible to design and build a multibladed, high speed turbine having a blade diameter not exceeding 1 meter, with a rotor of low inertia to drive a generator to charge the batteries of an electric vehicle, due to the fact that the power generated is proportional to the intertia of the rotor, to the square of the angular velocity of the rotor

and to the cube of the velocity of the wind and to the density of air. The generator of such a system could be of the variable frequency type so that it is suitable for the varying speed of the vehicle. Another advantage of this systems is that we do not need high capacity batteries as the batteries get recharged when the vehicle is in motion. Therefore, the cost and weight of the batteries could be reduced considerably. But there will be additional weight due to the inclusion of the turbine, generator, charging device, supporting structure and antivibration mounts.

If the rating of the generator of such a system is about 20% higher than that of its drive mechanism, the vehicle could run continuously without stopping for recharging the batteries and will be independent of solar energy. The only limitation could be the rating of the drive mechanism which should be suitably rated.

No drawings are attached, as the text is self-explanatory.

C L A I M S

1. An electric vehicle with a wind driven generator mounted on its roof would be self charging.

2. A vehicle as claimed in Claim 1 does not need main supply for charging the batteries.

3. A vehicle as claimed in Claim 1 or Claim 2, is independent of solar energy.

4. A vehicle as claimed in Claim 2 or Claim 3 has an operating range depending on the rating of the generator and the rating of the drive mechanism.

5. A vehicle as claimed in Claim 3 or Claim 4 would supply more power to the batteries, the more the vehicle runs.

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